

Chapter 18

Visual Resources

Both natural and artificial landscape features contribute to perceived visual images and the aesthetic value of a view. The value is determined by contrasts, forms and textures exhibited by geology, hydrology, vegetation, wildlife, and man-made features. Individuals respond differently to changes in the physical environment, depending on prior experiences and expectations and proximity and duration of views. Therefore, visual effects analyses tend to be highly subjective in nature. The following sections describe the existing visual resource conditions of the areas that could be affected by water acquisitions and an analysis of potential effects.

18.1 Affected Environment/Existing Conditions

18.1.1 Area of Analysis

Effects are assessed in the Upstream from the Delta Region, Delta Region, and in the Export Service Area. This discussion focuses on the areas where EWA actions would take place (Figure 18-1):

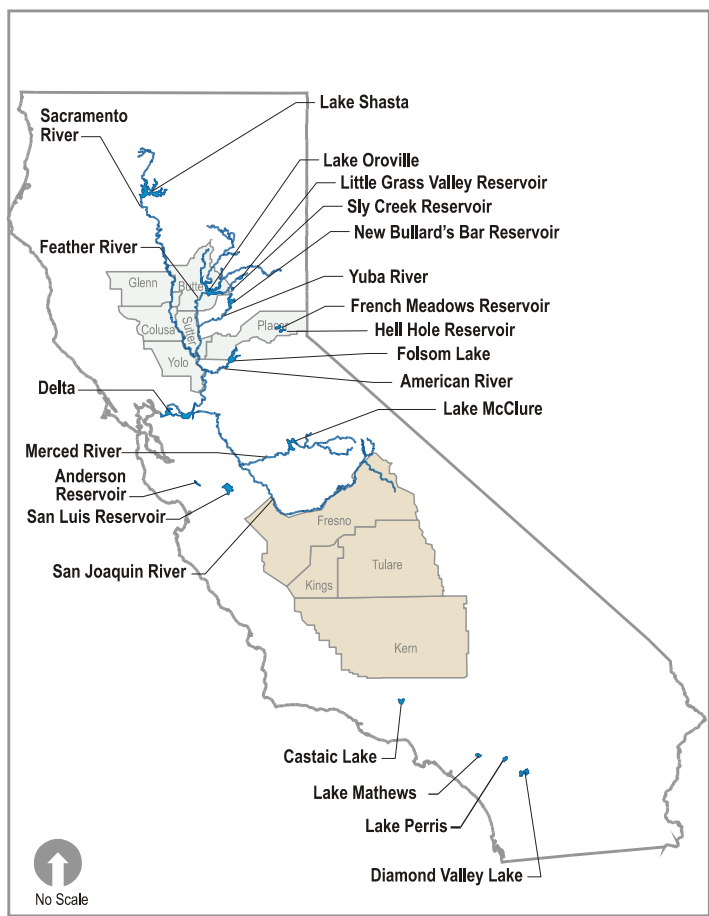


Figure 18-1
Visual Resources Area of Analysis

- Upstream from the Delta Region: Lake Shasta; Little Grass Valley and Sly Creek Reservoirs; Lake Oroville; New Bullard's Bar Reservoir; French Meadows and Hell Hole Reservoirs; Folsom Lake; Lake McClure; Sacramento, Feather, Yuba, American, and Merced Rivers; crop idling areas in Glenn, Colusa, Yolo, Sutter, Butte, and Placer Counties.
- Delta Region
- Export Service Area: Anderson Reservoir; San Luis Reservoir and O'Neill Forebay; Lake Perris; Castaic Lake; Diamond Valley Lake; and Lake Mathews.

18.1.2 Upstream from the Delta Region

The Upstream from the Delta Region is bordered on the east by the Sierra Nevada, on the northwest by the Coast Ranges, and on the south by the northern extent of the San Joaquin River watershed. Agriculture in the Central Valley, forests in the upper watersheds, and grasslands and woodlands in the foothills characterize the region visually. Other low-elevation characteristics include occasional wetlands, vernal pools, and riparian areas. Much of the upper watershed on the east side of the Central Valley is forested, which limits views for motorists traveling through the area. Scenic stream corridors in the foothills include the Feather, Bear, Yuba, American, and Merced Rivers, and their smaller tributaries.

Historical changes from grasslands, floodplains, and extensive riparian areas to cropland, rice fields, and orchards have altered the visual variety in the Central Valley portion of the Upstream from the Delta Region. The valley floor is primarily irrigated agriculture that is Variety Class C – the least visually distinctive category (see Section 18.2.1 Assessment Methods for a description of the Variety Classes). Important (Variety Class A or B) visual resources on the valley floor include the Sacramento National Wildlife Refuge Complex, which contains the Sacramento National Wildlife Refuge (NWR), Colusa NWR, Delevan NWR, Sacramento River NWR, Sutter NWR, and Butte Sink NWR.

Reservoirs in the region increase the level of scenic attractiveness at their maximum operating levels. Reservoirs are generally Class A or B visual resources when their water surface elevations are near to or at their maximum. As drawdown occurs during the summer and fall, an increasing area of shoreline devoid of vegetation, commonly referred to as a “bathtub ring”, appears in the area between the normal high water mark and the actual lake level. The exposed rock and soil of the drawdown zone contrasts with the vegetated areas above the high water level and with the lake’s surface. As a consequence of reservoir operations, the level of scenic attractiveness tends to decline in July and August with increasing drawdown.

Seasonal variations in flow levels of the rivers within this region provide for a wide range of aesthetic opportunities. Most of the rivers in this region have low flow regulations in place. Flow requirements for the various rivers and streams may be found in State Water Resources Control Board water right permits or licenses, Federal Energy Regulatory Commission (FERC) hydropower licenses, and interagency agreements (White 2003). Because there are minimum flow requirements and the flows are managed, riparian vegetation along the rivers reflects the results of current management practices. These practices include levees for flood control, managed floodplains and overflow bypasses, and controlled releases from reservoirs and result in a narrow riparian corridor. None-the-less, riparian vegetation remains an important visual aspect to all streams and river corridors. Water, shade, and dense cover distinguish the riparian areas from the surrounding land. In addition, riparian areas are popular wildlife habitat as they offer food, water, and protection from both the sun and from large-scale human disturbance.

Highways with high viewer sensitivity in the area of analysis include: Interstate 5, Highway 99, and State Routes 70 and 20. Agricultural areas along these highways and other roads in the Central Valley are generally Class C. The following sections describe the visual character of water bodies in the Upstream from the Delta Region.

The only upland elevations in the northern Central Valley upstream from the Delta are 32,000 acres in the Sutter Buttes. Rising from the valley floor, the Sutter Buttes, generally a Class A visual resource, provide visual drama from a wide viewing area.

18.1.2.1 Sacramento River

The Sacramento River originates above Lake Shasta in the north and flows through the Sacramento Valley to the Delta. Agriculture, a Class C visual resource, dominates the land use near the River along the valley floor, while the upper watershed has retained its oak woodland, grasslands, forests, and rural character. Rice is one of the prominent crops grown in the Sacramento Valley and is visibly noticeable along the Interstate 5 corridor. The Sacramento Valley also has many acres of other field crops and orchards.

18.1.2.1.1 Lake Shasta

Lands adjacent to Lake Shasta consist primarily of steep slopes, upland vegetation, and coniferous forests (Class A and B visual resources). Shoreline areas are largely undeveloped and experience summer drawdown zones. The shorelines of Lake Shasta vary from steep and rocky banks to coves of wooded flats. During the summer months, Lake Shasta levels are drawn down creating a ring of bare soils along the lake's high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area.

18.1.2.2 Feather River

The upper, middle, and lower forks of the Feather River originate in Plumas and Lassen Counties. The forks flow south/southwest and join in Lake Oroville, then continue south to the Feather River's confluence with the Sacramento River. Agricultural lands (Class C) are predominant near the Feather River in its lower reaches, while upper reaches of the three forks have visual resources typical of the Sierra foothills (Class A and B visual resources).

The lower Feather River terrain is generally flat. Riparian vegetation lines the river, with grassland and croplands in the adjacent agricultural areas. Along the southern portion of the Feather River, near Marysville, large areas of rice fields, as well as other field crops are located.

18.1.2.2.1 Little Grass Valley and Sly Creek Reservoirs

Little Grass Valley Reservoir, at an elevation of 5,046 feet in the Plumas National Forest, comprises 16 miles of shoreline. The shoreline offers a variety of wildlife viewing opportunities for birds and mammals. Sly Creek Reservoir is located in eastern Butte County, 35 miles east of Oroville. The area has a combination of coniferous and hardwood trees. Campgrounds, picnic areas, and other developed recreation areas all provide views to Little Grass Valley and Sly Creek Reservoirs.

During the summer months, the reservoir's levels are drawn down to create a ring of bare soils beneath the high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area. In general; however, the Little Grass Valley and Sly Creek Reservoirs have both Class A and B visual resources.

18.1.2.2.2 *Lake Oroville*

Dams, reservoirs, and related facilities are among the most visually important elements within the Lake Oroville landscape and its vicinity. Although the scenery in the foothill region around the facilities is attractive, it is generally of local and regional importance, not state or national importance. The State recreation area at Lake Oroville has Class A and B visual resources.

The Lake Oroville Visitor Center, on the crest of Kelley Ridge, includes a 47-foot high observation tower designed to provide panoramic views of the dam and reservoir. Many of the most immediate views of the reservoir are from marinas, boat launch areas, campgrounds, picnic areas, and other developed recreation areas surrounding the reservoir. During the summer months, Lake Oroville levels are drawn down to create a ring of bare soils beneath the lake's high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area.

18.1.2.3 *Yuba River and New Bullards Bar Reservoir*

The Yuba River's north, middle, and south forks originate in the Sierra Nevada. The north and middle forks of the Yuba River meet and join downstream of New Bullards Bar Reservoir, and the south fork joins just upstream of Englebright Lake. The confluence of the Yuba and Feather Rivers is near Marysville. The terrain along the north and south forks of the Yuba River consists of large areas of pine trees intermixed with small pockets of hardwood and barren land (Class A or B visual resources). The middle fork of the Yuba River has very similar terrain features, but small pockets of annual grassland are intermixed within the terrain. Grassland, agricultural fields, as well as some areas of barren land (Class C visual resources), surround the Lower Yuba River as it flows toward the Feather River near Marysville.

18.1.2.3.1 *New Bullards Bar Reservoir*

New Bullards Bar Reservoir is located on the north fork of the Yuba River, approximately 21 miles north of Nevada City. Conifers and mixed hardwoods surround the reservoir. Cliffs of red, clay-like soil are also found in areas around the reservoir. These variations offer the visitor a variety of landscape views. A marina, trail, and campgrounds provide public access and viewing opportunities. Adjacent county roads also provide viewing opportunities of New Bullards Bar Dam and Reservoir. During the summer months, New Bullards Bar Reservoir levels are drawn down to create a ring of bare soils below the reservoir's high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area. In general, however, the reservoir has both Class A and B visual resources.

18.1.2.4 American River

18.1.2.4.1 Upper American River

The upper American River flows through steep valleys with large expanses of exposed granite found most often in higher elevations. Some of these canyon walls drop as much as 1,000 feet vertically in places. Most of the areas along the north fork of the American River are occupied by pine, with the some steep hillsides occupied by oak and chaparral communities (PCWA 2001). The north fork of the American River is a federally designated Wild and Scenic River, and is a Class A visual resource.

The environment at the confluence of the north and middle forks of the Upper American River is characterized by two canyons that converge into a single canyon. The river flows through the canyon about 2,000 to 4,000 feet below the rim. These features combine to create a landscape of high visual quality.

18.1.2.4.2 French Meadows and Hell Hole Reservoirs

French Meadows Reservoir, in Placer County, has a picturesque shoreline that consists of many varieties of trees and shrubs, as well as wildflowers. This vegetation provides suitable habitat for many wildlife species, and opportunities for wildlife viewing.



Source: SWRI

Figure 18-2
Hell Hole Reservoir

Hell Hole Reservoir is located in the Eldorado National Forest and has a 15-mile shoreline of rugged canyon walls that make it very picturesque, as shown in Figure 18-2. The reservoir's clear water adds to the visual character of the landscape and the shoreline is suitable for wildlife and bird viewing.

French Meadows and Hell Hole Reservoirs are both Class A and B visual resources. During the summer months, the water

surface elevations in both French Meadows and Hell Hole Reservoirs are drawn down to create a ring of bare soil below the reservoir's high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area.

18.1.2.4.3 Folsom Lake

Folsom Lake contrasts sharply with the nearby rolling grassland and wooded foothill landscapes. During the summer months, Folsom Lake levels are drawn down to create a ring of bare soils below the lake's high water mark. The ring represents a negative visual feature that affects the overall visual quality of the area. Folsom Lake, however, generally creates a pleasing visual setting for recreational uses (PCWA 2001). Lake Natoma, which is just downstream from Folsom Lake, is surrounded by

gravel banks, large boulders, and riparian vegetation that provide an attractive landscape for visitors. Folsom Lake and Lake Natoma have both Class A and B visual resources.

18.1.2.4.4 Lower American River

The lower American River provides a variety of visual experiences, including steep bluffs, terraces, islands, backwater areas, and riparian vegetation. The water surface, gravel banks, natural grasses, smaller plants, and a variety of trees along the river create a natural setting designated as a “protected area” in the American River Parkway Plan by Sacramento County for native plant restoration and habitat protection (PCWA 2001). The American River reach through Sacramento is a federally designated Wild and Scenic River.

The portion of the river from Nimbus Dam to the Gristmill Dam Recreation Area (approximately two miles upstream of the Watt Avenue Bridge) is viewed most frequently by passing motorists at bridge crossings. This unit is considered to be the most sensitive visual portion of the lower American River. The lower American River is generally considered a Class A visual resource.

18.1.2.5 Merced River

The south fork of the Merced River is a federally designated Wild and Scenic River and considered a Class A visual resource. It enters the mainstem of the Merced River near South Fork, CA. The mainstem of the Merced River then flows west, through Lake McClure, out of the foothills, and into the surrounding area consisting mainly of farmland (Class C).

Class C features along the Merced River corridor include field crops, fruit and nut trees, and vegetables. Other Class C agricultural land uses, such as dairies and poultry farms, are also scattered throughout the corridor.

18.1.2.5.1 Lake McClure

Lake McClure is located in the Sierra Nevada Foothills in Mariposa County. The lake has 80 miles of shoreline and is surrounded by pine and oak woodlands. Lake McClure has many areas suitable for bird and wildlife viewing. The reservoir typically has Class A and B visual resources. During the summer months, the lake is drawn down to create a ring of bare soils below the lake’s high water mark. The ring is a negative visual feature of the lake.

18.1.3 Delta

A large portion of the Delta is devoted to farming. The region is interlaced with a network of waterways and levees designed to protect the Delta’s islands and tracts. Major visual resources in the Delta Region include the state recreation areas of Franks Tract, Brannon Island, and Windy Cove; Stone Lakes NWR; the Consumnes-Mokelumne River confluence wildlife preserve; and several private marinas, camping, and fishing sites. SR 160 is a state-designated scenic highway from Antioch

to Freeport. Representative Scenic Classes A and B resources viewed from the Delta include Mount Diablo in Contra Costa County and the Vaca Range in Napa and Solano Counties.

The main roads from which travelers can view the Delta are State Route 160, 4, and 12. In many sections of State Route 4 and 12, it is impossible to view the Delta waterways, but elevated features such as Mount Diablo can be seen. Delta waterways including rivers, creeks, and sloughs are visible primarily from boats, which use the Delta for commerce and recreation.

18.1.4 Export Service Area

The Export Service Area encompasses the San Joaquin Valley, Santa Clara Valley, and southern California. The San Joaquin Valley is predominantly centered upon agriculture (cotton, dairy, safflower, wheat, and citrus orchards), urban environments (such as Fresno and Bakersfield), and mountainous terrain (Coastal Range, Tehachapi Mountains, and southern California Ranges). As with the Sacramento Valley, broad, sweeping panoramas of agricultural fields, interspersed with regional infrastructure (roads and canals) and a variety of urbanized areas characterize views within the San Joaquin Valley today. Highways in the surrounding areas with high viewer sensitivity include 152, 33, 5, 68, and 75. Many of these highways follow routes near the lakes and reservoirs within the area that are defined by the surrounding rolling hills such as those found in the Los Angeles National Forest.

Historical changes from grasslands and extensive marsh areas to cropland and orchards have changed the visual variety in the Central Valley. The valley floor is primarily irrigated agriculture that is a Class C visual resource. Important (Scenic Class A or B) visual resources on the valley floor include the San Luis National Wildlife Refuge Complex (the San Luis and Merced NWRs), which is located in the northern San Joaquin Valley in what is known as the Grasslands Ecological Area. This 160,000-acre area contains a third of the wetlands remaining in the Central Valley of California, and includes the Los Banos, Volta, and North Grasslands wildlife areas (California Dept. of Fish and Game), Great Valley Grasslands State Park (California Dept. of Parks and Recreation), and over 100 privately-owned duck clubs.

The Santa Clara Valley is a flat, gently sloping valley floor surrounded by the low, rolling to steep foothills of the Diablo Range to the east and the Santa Cruz Mountains and Gabilan Range to the west.

Southern California is characterized by urban areas such as Los Angeles and San Diego, the Mojave and other deserts, coastal scrub, and forested mountains. The topography ranges from sea level at the coast to almost 9,000 feet in the San Gabriel Mountains.

18.1.4.1 Anderson Reservoir

Anderson Reservoir is located in the Coyote Creek watershed of the Mt. Hamilton foothills just east of the City of Morgan Hill in Santa Clara County. The surrounding terrain is characterized by steep, undeveloped hillsides covered by a mix of grassland, oak, chaparral vegetation, with occasional pine trees. Land use is open space, public access parks, rangeland, and watershed. There are several residences within the immediate vicinity of the reservoir. Because the reservoir is used for water storage and flood control, it experiences seasonal changes in water levels creating a broad drawdown zone by early fall.

18.1.4.2 San Luis Reservoir

San Luis Reservoir is nestled in the grassy hills of the western San Joaquin Valley near historic Pacheco Pass. The reservoir's 23,551-acre recreation area provides boating, fishing, boardsailing, camping, and picnicking. In the spring the golden-brown hills surrounding the reservoir are coated with an ephemeral coating of green, highlighted by bursts of wildflower colors. A visitor center at the Romero Overlook offers information on the reservoir and provides telescopes for viewing the area around the reservoir. The groundwater recharge basins nearby, such as the San Luis Rey basin, provide habitat and viewing opportunities for waterfowl and water birds.

18.1.4.3 Diamond Valley Lake

Diamond Valley Lake, between Temecula and Hemet, is 4.5 miles wide. The lake has a 285-foot high dam on its west side and a 185-foot high dam on its east side. Public access to this lake begins in 2003 and will include picnic grounds, overlook sites, a trail for biking, hiking, and riding, and wildlife and vegetation viewing.

18.1.4.4 Lake Perris

Lake Perris, southeast of Los Angeles, has 10 miles of shoreline with picnic sites and trailheads that provide for hiking and viewing opportunities. Lake Perris also serves as a sanctuary to observe wildlife. Ducks and geese winter at the lake and shorebirds flock there most of the year. Birds of prey and upland birds inhabit the surrounding grasslands and mountains.

18.1.4.5 Castaic Lake

Castaic Lake is in the Castaic Mountains in southern California and comprises 29 miles of shoreline that supports a variety of tree, shrubs, and wildflower species. The 425-foot tall Castaic Dam attracts many visitors. Castaic Lagoon, south of Castaic Lake, features sandy beaches and grassy picnic areas.

18.1.4.6 Lake Mathews

Lake Mathews is in Riverside County and is part of the Estelle Mountain Reserve, which consists of approximately 4,000 acres formally designated as a State Ecological Reserve. The Reserve encompasses the largest block of open, natural and semi-natural land in western Riverside County (Center for Natural Lands Management 2003). Flat grasslands and sage scrub surround Lake Mathews; rolling hills, the Santa Ana mountains, and Monument Peak provide backdrop.

18.2 Environmental Consequences/Environmental Impacts

18.2.1 Assessment Methods

Under each alternative, the EWA agencies would negotiate contracts with willing sellers based on a number of factors, including price, water availability, and location. These factors would change from year-to-year; therefore, the EWA agencies may choose to vary the acquisition strategy in each year. To provide maximum flexibility, this analysis includes many potential transfers that the EWA agencies would not likely need in a given year. Chapter 2 defines the transfers that are included in this analysis.

Because the nature of landscape analysis is very subjective, visual resource analyses are generally qualitative. In this analysis, the assessment methods are guided by the Scenery Management System (SMS) developed by the United States Department of Agriculture, Forest Service (USDA FS) in 1995 and outlined in *Landscape Aesthetics: A Handbook for Scenery Management, Agriculture Handbook Number 701*. The SMS is an evolved and updated version of the Visual Management System. While the essence of the system remains unchanged, the SMS allows for improved integration of aesthetics with other biological, physical, and social/cultural resources in the planning process. This assessment describes the effects of EWA acquisitions on known sensitive visual resources and landscapes in the area of analysis. The analysis discusses the effects of stored reservoir water, groundwater substitution, source shifting, and crop shifting/idling. Effects are evaluated based on the significance criteria described in Section 18.2.2. The SMS is applied to the EWA program using the following steps:

- **Identify visually sensitive areas.** Sensitivity is considered highest for views seen by people driving to or from recreational activities, or along routes designated as scenic corridors. Views from relatively moderate to high-use recreation areas are also considered sensitive.
- **Define the landscape character.** Landscape character gives an area its visual and cultural image, and consists of the combination of physical, biological, and cultural attributes that make each landscape identifiable or unique. Landscape character refers to images of the landscape that can be defined with a list of scenic attributes. A description of landscape character is provided in Section 18.1, Affected Environment, for each of the visually sensitive areas identified.
- **Classify Scenic attractiveness.** Scenic attractiveness classifications are a key component of the SMS and are used to classify visual features into the following categories (USDA FS 1995):
 - Class A - “distinctive”: Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

- Class B - “typical”: Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide ordinary or common scenic quality. These landscapes generally have positive, yet common, attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.
- Class C - “indistinctive”: Areas where landform, vegetation patterns, water characteristics, and cultural land use have low scenic quality. Often water and rock form of any consequence are missing in Class C landscapes. These landscapes have weak or missing attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

Class A and B resources typically include state or federal park, recreation, or wilderness areas. Rivers and reservoirs are typically considered Class A or B visual resources. Class C resources generally include areas that have low scenic quality and contain more common landscapes, such as agricultural lands. Landscape character is provided in Section 18.1, Affected Environment, for each of the visually sensitive areas identified.

18.2.2 Significance Criteria

Three significance criteria are used for this analysis. An impact on a visual resource would be potentially significant if implementing an action would:

1. Obstruct or permanently reduce visually important, Scenic Class A and B features that can be viewed from visually sensitive areas.
2. Result in long-term (that is, persisting for 5 years or more) adverse visual changes or contrasts to the existing landscape as viewed from areas with high visual sensitivity within 3 miles.
3. Adversely affect landscape character and scenic attractiveness of Class A and B visual resources.

A river would be adversely affected visually if the decrease in flow resulted in exposure of the riverbed, reduction of riparian vegetation along the banks, or changes to any important visual features of the river. An adverse visual effect to reservoirs would occur if surface water elevation levels decreased to a level such that shoreline riparian vegetation were reduced or the “bathtub” ring was substantially larger than under the existing conditions.

18.2.3 Environmental Consequences/ Environmental Impacts of the No Action/No Project Alternative

The analysis of the visual resources during the assessment period (Stage 1 phase of the CALFED plan) indicated that there would be no changes in visual resources from that described in the Affected Environment/Existing Conditions section. The No Action/No Project Alternative would not include construction action resulting from

not implementing the EWA. In addition, the No Action/No Project Alternative would not change ongoing Central Valley Project (CVP)/State Water Project (SWP) water delivery operations. Any effects on visual resources relating to lowered reservoir levels and decreased river flows would be the same under the future Project operations. Therefore, the No Action/No Project Alternative reflects that of the affected environment description and is termed Baseline Condition in the following sections. The No Action/No Project Alternative would have no effect on visual resources.

18.2.4 Environmental Consequences/Environmental Impacts of the Flexible Purchase Alternative

The EWA does not involve construction, introduction of new scenic features, or activities that would visually change the landscape for more than one season. Therefore, there would not be any visual effects of EWA acquisitions relating to the first two significance criteria listed in Section 18.2.2. EWA actions, however, could result in temporary changes or seasonal changes in the landscape. Therefore, effects could occur relating to the third significance criteria in Section 18.2.2. This analysis describes these potential effects to landscape in the area of analysis.

The Flexible Purchase Alternative allows acquisitions of up to 600,000 acre-feet and does not specify limits for acquisitions from the Upstream from the Delta Region or the Export Service Area within the 600,000 acre-feet maximum. The maximum transfer from the Upstream from the Delta Region would be between 50,000 and 540,000 acre-feet (assuming carriage water losses), depending on hydrologic year and conveyance capacity through the Delta. Although the use of all potential acquisition methods would probably not occur in a single year, this section discusses all transfers to provide effects analysis of the maximum transfer scenario.

The environmental consequences on visual resources of stored reservoir water, groundwater substitution, crop idling, and source shifting are discussed by water body. If no visual environmental consequences have been associated with an acquisition type, the acquisition type is not discussed. All changes to surface water elevations and flows are in comparison to the Baseline Condition. Refer to Appendix H for modeling results.

EWA agencies could potentially negotiate multi-year transfers with willing water agencies. Multi-year transfers would have the same effects on visual resources as those described in the Flexible Purchase Alternative analysis.

18.2.4.1 Upstream from the Delta Region

EWA acquisition of water in Butte, Colusa, Glenn, Placer, Sutter, and Yolo Counties via crop idling would result in temporary conversion of lands from rice crops to dry fields during the summer growing season. A portion of this area's rice acreage, near Interstate 5 and Highway 99, are visible to large numbers of viewers. The specific locations where rice farmland idling will occur is not known so it is not known if the idled land will be visible to the general public. Rice acreage (agricultural land) is generally considered a

Class C visual resource. Each year, some portions of the existing rice acres are normally idled, creating a patchwork of flooded and dry fields. EWA crop idling actions would increase the amount of dried fields during the summer months to a maximum of 20 percent total rice acreage in each county, or 47,980 acres for the entire Upstream from the Delta Region. EWA actions would not affect the Class C rating of rice acreage because idling only changes the mosaic pattern of farmland practices and does not add a new visual feature to the landscape. Therefore, there would be no effect to the character of the landscape or visual attractiveness in the area, and the visual effect would be less than significant.

Waterfowl use flooded agricultural land during the summer for brood, cover, and rearing habitat and during migratory periods and winter for cover and forage. During the winter, large numbers of waterfowl can occasionally be observed in rice fields, increasing the visual attractiveness of the area. Because EWA actions would only occur during the summer months, and rice fields are normally flooded during late fall through early spring (due either to rainfall or site preparation flooding), EWA actions would not affect wildlife viewing opportunities. Furthermore, in the summer, the dry fields can create upland habitats suitable for raptors and their prey, increasing a potential for viewing different types of wildlife. Because crop idling is not a permanent practice, this effect would be less than significant. No mitigation is required.

18.2.4.1.1 Sacramento River

EWA acquisition of Sacramento River Contractor water via groundwater substitution and crop idling would decrease Sacramento River flows from Lake Shasta downstream to its diversion pumps in June¹. EWA acquisition of up to 120,000 acre-feet of water via groundwater substitution and up to 158,000 acre-feet from crop idling would decrease flows by 1,160 cubic feet per second (cfs) in June. The reduction from 18,180 cfs to 17,020 cfs represents a minimal decrease in median monthly flow and would not result in a visual effect. The Sacramento River is generally considered a Class B visual resource. The decreases in flow would be insufficient to reduce the riparian vegetation corridor along the river. Therefore, because the minimal percent reduction of flow and the temporary nature of the decrease would not change the character of the landscape or detract from the overall scenic attractiveness of the Sacramento River, this effect would be less than significant. No mitigation is required.

EWA acquisition of Sacramento River contractor water via groundwater substitution and crop idling would increase Sacramento River flows downstream from Lake Shasta in July through September. EWA acquisition of up to 120,000 acre-feet of water via groundwater substitution and up to 158,000 acre-feet from crop idling would increase Sacramento River flows by 240 cfs between Lake Shasta and the point of diversion in July. Flows in this reach would decrease 133 cfs and 111 cfs in August and September, respectively. Downstream from the diversion point, flows would increase by 289 cfs,

¹ Because of flow and temperature requirements in the Sacramento River, Lake Shasta would not be able to store EWA water from groundwater substitution and crop idling in April and May. During these months, flows in the Sacramento River would be the same as under the Baseline Condition. In some years, (depending on hydrologic conditions) Lake Shasta would store EWA water in June.

372 cfs, 429, cfs, 1,940 cfs, 777 cfs, and 157 cfs April through September, respectively. This represents a 1 to 11 percent increase in flow. An increase in flow could contribute to the character of the landscape; therefore, there would be no adverse effect. No mitigation is required.

Lake Shasta

EWA acquisition of Sacramento River contractor water via groundwater substitution and crop idling would change the timing of releases from Lake Shasta. Lake Shasta would hold back at most, 68,900 acre-feet of water that would have been released under the Baseline Condition. The lake level would decline faster in July and August compared to Baseline Conditions; however, end of month elevation in September would be the same as the Baseline Condition because of reduced releases during September. Lake Shasta elevation would be 1.1 feet lower in July, 0.5 of a foot lower in August, and equal to the Baseline Condition in September (Figure 14-5; Chapter 14). Differences of these magnitudes relative to the Baseline Condition would not change the character of the landscape or scenic attractiveness (Class A or B) of Lake Shasta. The existing “bathtub” rings, under the Baseline Condition would be large enough that an additional drop of less than 2 feet would not result in any significant visible effects. Reduction of surface water elevation also would have minimal effect on the visual features of riparian vegetation along the banks; therefore, this effect would be less than significant. No mitigation is required.

18.2.4.1.2 Feather River

Sly Creek and Little Grass Valley Reservoirs

EWA acquisition of Oroville-Wyandotte Irrigation District (ID) stored reservoir water would decrease surface water elevations from December until refill for Sly Creek and Little Grass Valley Reservoirs. EWA acquisition of up to 15,000 acre-feet of stored reservoir water would decrease surface water elevation by a maximum of 12 feet in Little Grass Valley Reservoir (Figure 14-6) and a maximum of 17 feet from December until refill of Sly Creek Reservoir (Figure 14-7). According to the refill criteria (Chapter 4), the reservoirs would refill in the wet season from December through May in most years, but some of that water would need to be released downstream during the late summer if the water used to refill has been used by the CVP/SWP downstream.

Under the Baseline Condition, median reservoir levels show that Sly Creek Reservoir fluctuates 106.3 feet, which creates a large “bathtub ring” when the reservoir is drawn down. Similarly, Little Grass Valley Reservoir fluctuates 30 feet under the Baseline Condition. The EWA would draw down the reservoirs past the Baseline Condition, causing the bathtub rings to be slightly larger during the early winter months. The existing rings; however, are large enough that an additional drop (17 feet and 12 feet) would not affect any Class A or B scenic features of Sly Creek and Little Grass Valley Reservoirs. The visual effects of the decrease in elevation would only be temporary and only apparent during the winter months because the reservoirs would refill within a few months of the transfer. Therefore, there would be little effect to Class A or B visual resources of the reservoirs and thus the effect would be less than significant. No mitigation is required.

Lake Oroville

EWA acquisition of water from Western Canal WD, Joint Water District Board, and Garden Highway MWC via crop idling and groundwater substitution would increase the surface water elevation from April to June and decrease the surface water elevation in July and August in Lake Oroville compared to the Baseline Condition. EWA agencies would acquire 110,000 acre-feet through groundwater substitution and 126,550 acre-feet through crop idling. During April through June, Lake Oroville would hold back water that would have been released under the Baseline Condition. By the end of June, the surface water elevation in the reservoir would be, at most, 2 feet higher than under the Baseline Condition (Figure 14-8; Chapter 14). Increased releases in July and August would cause the lake level to decline faster compared to the Baseline Condition; however, reduced releases in September would allow the end of month elevation in September to be the same as the Baseline Condition. Under the Baseline Condition, the “bathtub” ring of Lake Oroville is visually noticeable. The EWA would result in the “bathtub” ring becoming larger during July and August, although, by September the ring would be the same size as under the Baseline Condition. Therefore, there would be little visual effect to the “bathtub” ring or shoreline vegetation. Thus, there would be little effect to Class A or B visual resources of Lake Oroville and this effect would be less than significant. No mitigation is required.

18.2.4.1.3 Yuba River

EWA acquisition of Yuba River Contractor water via groundwater substitution would decrease Yuba River flows from April to June. EWA acquisition of water via groundwater substitution would decrease flows by 239 cfs from April to June between Yuba County WA’s power facility discharge (just upstream of Englebright Reservoir) and the users’ diversion points, typically at Englebright or Daguerre Point Dam). Because flow reductions below the Englebright Dam would be minor and temporary, the character of the landscape would not change and the overall scenic attractiveness of the Yuba River would remain intact. The visual character of riparian vegetation along the river corridor would not be affected, and a decrease in flow would cause little affect to Class A or B visual resources. This effect would be less than significant. No mitigation is required.

EWA acquisition of Yuba River Contractor water via groundwater substitution would increase Yuba River flows in June through September. Yuba River flows would increase at most by 1,005 cfs in July through September; approximately 60 percent above the Baseline Condition. An increase in flow would contribute to the character of the landscape of the resource; therefore, there would be adverse effect.

New Bullards Bar Reservoir

EWA acquisition of water from Yuba County Water Agency (Yuba County WA) via stored reservoir water and groundwater substitution would alter the surface water elevation from April to refill at New Bullards Bar Reservoir. EWA acquisition of up to 85,000 acre-feet of water from groundwater substitution would increase water levels in New Bullards Bar Reservoir while the water is held back until the Delta pumps are available. EWA acquisition of 100,000 acre-feet of stored reservoir water from New Bullards Bar Reservoir would decrease water levels, with the release of water starting at the same

time that the water from groundwater substitution is released. Figure 14-9 illustrates the combined effects of these two transfers on the reservoir. The combination of these releases would reduce lake levels compared to the Baseline Condition by 1 foot, 10 feet, and 24 feet in July, August, and September, respectively. In October, the drawdown zone would be greater than under the Baseline Condition, but not greater than the maximum potential drawdown zone. This visual effect would cause little affect to Class A or B scenic features of the Yuba River. Therefore, effects to visual resources would be less than significant. No mitigation is required.

18.2.4.1.4 American River

EWA acquisition of Placer County WA stored reservoir water would increase Middle Fork of the American River flows downstream from Oxbow Powerhouse to Folsom Lake from June through October. Releases would increase relative to the Baseline Condition. An increase in flow could contribute to the character of the landscape of the resource; therefore, there would be no adverse effect.

EWA acquisition of Placer County WA stored reservoir water would decrease American River flows downstream from French Meadows Reservoir to Folsom Lake during refill of Hell Hole and French Meadows Reservoirs. River flows would decrease during the winter and early spring. During the winter, the river is already at a time of high flows under the Baseline Condition. A decrease in flow that could occur under the EWA would not result in any change to Class A or B visual resources². This area would not be considered visually sensitive because recreation is limited and many people would not view the area; therefore, this effect would be less than significant. No mitigation is required.

EWA acquisition of Sacramento Groundwater Authority's water via stored groundwater purchase would increase American River flows downstream from Folsom Lake from June through December. The EWA agencies would help to determine when and at what rate this water would be released to provide instream fishery benefits as well as to transfer it across the Delta. An increase in flow would contribute to the landscape character of the resource; therefore, this effect would be less than significant. No mitigation is required.

Hell Hole and French Meadows Reservoirs

EWA acquisition of Placer County WA stored reservoir water would decrease surface water elevations from June to refill at Hell Hole and/or French Meadows Reservoirs. EWA acquisition of up to 20,000 acre-feet of stored reservoir water would decrease surface water elevation by a maximum of approximately 8 feet in French Meadows Reservoir (Figure 14-10) and in Hell Hole Reservoir by a maximum of approximately 14 feet from July until refill (Figure 14-11). Under the Baseline Condition, median reservoir levels show that Hell Hole Reservoir fluctuates 110 feet, which creates a large "bathtub ring" when the reservoir is drawn down. Similarly, French Meadows Reservoir fluctuates 60 feet in a median year under the Baseline Condition. The EWA

² The decrease in flows cannot be predicted quantitatively because it is unknown how the reservoirs would refill.

would draw down the reservoirs past the average low level exhibited under the Baseline Condition, causing the bathtub rings to be more extensive. The existing rings; however, are large enough that an additional drop would not significantly alter the landscape character or detract from the scenic attractiveness of the reservoirs. There would be little change to Class A or B visual resources of Hell Hole and French Meadows Reservoirs; therefore, the effects to visual resources from the reservoir decreases would be less than significant. No mitigation is required.

Folsom Lake

EWA acquisition of Sacramento Groundwater Authority's water via stored groundwater purchase and Placer County Water Agency's water via stored reservoir water would change surface water elevations in Folsom Lake. During July and August, the surface water elevation at Folsom Lake would be 0.8 of a foot lower than under the Baseline Condition. End of month elevation in September would be the same as under the Baseline Condition because of reduced releases during September (Figure 14-12; Chapter 14). The small changes in surface water elevation would have little effect on Class A or B visual resources of Folsom Lake; therefore, any visual effect would be less than significant. No mitigation is required.

18.2.4.1.5 Merced River

EWA acquisition of Merced ID water via groundwater substitution would decrease Merced River flows downstream from New Exchequer Dam to the point of diversion from April through September. Merced River flows in this reach would decrease by approximately 70 cfs. Long-term average Merced River flows below Crocker Huffman Dam under the Baseline Condition are 500 cfs, 894 cfs, and 881 cfs in April, May and June, respectively. A decrease of 70 cfs in flow would be insufficient to affect the visual character of riparian vegetation along the river corridor. Under the Baseline Condition, flows during July through September are less than 330 cfs. Therefore, a decrease of 70 cfs in flow would result in little change to Class A or B visual resources of the Merced River and the effect would be less than significant. No mitigation is required.

Lake McClure

EWA acquisition of Merced ID water via groundwater substitution would increase the water surface elevation in Lake McClure compared to the Baseline Condition. EWA agencies could acquire 25,000 acre-feet through groundwater substitution. During April through September, Lake McClure would hold back water that would have been released under the Baseline Condition. By the end of September, the surface water elevation in the reservoir would be, at most, 3 feet higher than under the Baseline Conditions (Figure 14-13). An increase in water surface elevations would improve the overall scenic attractiveness of Lake McClure and reduce the visibility and size of a "bathtub ring". Therefore, there would be no adverse effect. No mitigation is required.

18.2.4.2 Delta

There would be no decreases in Delta inflows from the Sacramento or San Joaquin Rivers under the Flexible Purchase Alternative; however, Delta exports would increase. EWA acquisition would not result in any effect to Class A or B visual

resources in the Delta. The character of the landscape and the level of scenic attractiveness would not change from the Baseline Conditions; therefore, the effect to visual resources would be less than significant. No mitigation is required.

18.2.4.3 Export Service Area

EWA acquisition of water in Fresno, Kern, Kings, and Tulare Counties via crop idling would result in temporary conversion of cotton fields to bare fields. A portion of the cotton acreage is near Interstate 5 and is visible to large numbers of viewers. Farmers rotate crops regularly, leaving a portion of the fields idle most years. EWA actions would increase



Source: CDM

Figure 18-3
Cotton Field Idled for Two Years with Regular Discing

the number of acres of idled land. Dust suppression measures, including use of a winter wheat cover crop, would reduce some of the visual change caused by cotton crop idling. The visual change from cotton land (Class C) to idled field (Class C, see Figure 18-3) would result in a minor visual change to a Class C resource (farmland). Because the character of the landscape would not change and the level of scenic attractiveness would remain as Class C, the effect to visual resources would be less than significant. No mitigation is required.

Anderson Reservoir

EWA source shifting of project water from San Luis Reservoir would decrease surface water elevations in Anderson Reservoir whereas EWA pre-delivery of water from San Luis Reservoir would increase surface water elevations. Santa Clara Valley Water District operates Anderson Reservoir for normal water supply, emergency water supply, and for flood control within the Coyote Creek drainage. The District maintains a minimum pool amount of 20,000-acre feet. The District would not be involved in any source shifting action that would decrease amounts to less than the minimum pool. Although source shifting may lower the surface elevation earlier than normal in a season, it would not cause a visual effect greater than that experienced as part of normal operations. Pre-delivery would result in an increased surface water elevation reducing the visual

effect of the drawdown zone. In either case, EWA source shifting or pre-delivery would have a less than significant effect on the visual quality of Anderson Reservoir.

San Luis Reservoir

EWA borrowed project water from San Luis Reservoir would decrease surface water elevations. Surface water levels in San Luis Reservoir would decrease earlier in the year. EWA actions may cause attaining low-point levels earlier in the year than under the Baseline Condition. The EWA assets would be managed to prevent the EWA action from causing or aggravating any low point problems in San Luis Reservoir. A decrease in surface water levels earlier in the year would not result in an adverse change to the existing landscape character or detract from the overall scenic attractiveness because the surface water levels in San Luis Reservoir typically vary during the summer under the Baseline Condition. EWA actions would not result in any change to Class A or B visual resources of San Luis Reservoir; thus, the effect to visual resources as a result of decrease in surface water levels would be less than significant. No mitigation is required.

Diamond Valley Lake, Lake Perris, Castaic Lake, and Lake Mathews

EWA Source shifting would decrease the summer surface water elevation at Diamond Valley Lake, Lake Perris, Castaic Lake, and Lake Mathews. Source shifting would not affect Class A or B visual resources because water levels in the reservoir would remain within the annual operating levels. Although source shifting may lower the surface elevation earlier than normal in a season, it would not cause a visual effect greater than that experienced as part of normal operations. EWA source shifting would have a less than significant effect on the visual quality of these reservoirs and is thus considered less than significant. No mitigation is required.

18.2.5 Environmental Consequences/Environmental Impacts of the Fixed Purchase Alternative

The Fixed Purchase Alternative specifies purchases of 35,000 acre-feet from the Upstream from the Delta Region, and 150,000 acre-feet from the Export Service Area. While the amounts in each region are fixed, the acquisition types and sources could vary. In this section, the effects of each potential transfer are analyzed to allow the EWA agencies maximum flexibility when negotiating purchases with willing sellers. These transfers are the same actions as those described for the Flexible Purchase Alternative, but the amounts are limited by the total acquisition amount in each region (35,000 acre-feet from the Upstream from the Delta Region and 150,000 acre-feet from the Export Service Area). The following sections evaluate the effects of the Fixed Purchase Alternative.

18.2.5.1 Upstream from the Delta Region

EWA acquisition of water in Butte, Colusa, Glenn, Placer, Sutter, and Yolo Counties via crop idling would result in temporary conversion of lands from rice crops to dry fields during the summer growing season. A portion of this area's rice acreage, near Interstate 5 and Highway 99, are visible to large numbers of viewers. The specific locations where rice farmland idling will occur is not known so it is not known if the idled land will be

visible to the general public. Rice acreage (agricultural land) is generally considered a Class C visual resource. Each year, some portions of the existing rice acres are normally idled, creating a patchwork of flooded and dry fields. EWA crop idling actions would increase the amount of dried fields during the summer months to a maximum of 20 percent total rice acreage in each county, or a maximum of 34,770 acres for the entire Upstream of the Delta Region. EWA actions would not affect the Class C rating of rice acreage because idling only changes the mosaic pattern of farmland practices and does not add a new visual feature to the landscape. Therefore, there would be no effect to the landscape character or visual attractiveness in the area, and the visual effect would be less than significant.

Waterfowl use flooded agricultural land during the summer for brood, cover, and rearing habitat and during migratory periods and winter for cover and forage. During the winter, large numbers of waterfowl can occasionally be observed in rice fields, increasing the visual attractiveness of the area. Because EWA actions would only occur during the summer months, and rice fields are normally flooded during late fall through early spring (due either to rainfall or site preparation flooding), EWA actions would not affect wildlife viewing opportunities. Furthermore, in the summer, the dry fields can create upland habitats suitable for raptors and their prey, increasing a potential for viewing different types of wildlife. Because crop idling is not a permanent practice, this effect would be less than significant. No mitigation is required.

18.2.5.1.1 Sacramento River

EWA acquisition of Sacramento River Contractor water via groundwater substitution and crop idling would decrease Sacramento River flows from Lake Shasta downstream to its diversion pumps in June. EWA acquisition of up to 35,000 acre-feet of water via groundwater substitution or up to 35,000 acre-feet from crop idling would decrease monthly Sacramento River flows by 180 cfs in June. The reduction from 18,180 cfs to 18,000 cfs in June would not result in affects to Class A or B visual resources and there would be no noticeable effect to Lake Shasta water levels. Crop idling would be limited to less than 20 percent of all rice farmland in each county. The effects to visual resources would therefore be less than significant. No mitigation is required.

EWA acquisition of Sacramento River contractor water via groundwater substitution and crop idling would increase Sacramento River flows downstream from Lake Shasta in July through September. EWA acquisition of up to 35,000 acre-feet of water via groundwater substitution and up to 35,000 acre-feet from crop idling would increase Sacramento River flows by 240 cfs between Lake Shasta and the point of diversion in July. An increase in flow could contribute to the character of the landscape; therefore, there would be no adverse effect.

Lake Shasta

EWA acquisition of Sacramento River contractor water via groundwater substitution and crop idling would change the timing of releases from Lake Shasta. Lake Shasta would hold back at most, 9,000 acre-feet of water that would have been released under the Baseline Condition. The lake level would decline faster in July and August compared to

Baseline Conditions; however, end of month elevation in September would be the same as the Baseline Condition because of reduced releases during September. Differences of these magnitudes relative to the Baseline Condition would not change the landscape character or scenic attractiveness (Class A or B) of Lake Shasta. Surface elevation reductions would not result in any significant visible effects on the existing “bathtub” rings. Reduction of surface water elevation also would have minimal effect on the visual features of riparian vegetation along the banks; therefore, this effect would be less than significant. No mitigation is required.

18.2.5.1.2 Feather River

Sly Creek and Little Grass Valley Reservoirs

EWA acquisition of Oroville-Wyandotte ID stored reservoir water would decrease surface water elevations from December until refill for Sly Creek and Little Grass Valley Reservoirs.. The EWA agencies would acquire stored reservoir water from Sly Creek Reservoir and Little Grass Valley Reservoir in November and December before fish actions are likely. An equivalent amount of water could be sold to the EWA agencies under the Fixed Purchase Alternative, as is described under the Flexible Purchase Alternative. Refer to Section 18.2.4.1.2, Feather River, for a discussion of potential effects on surface elevation fluctuations in Sly Creek and Little Grass Valley Reservoirs. Water acquisition requires no mitigation as there are potentially few effects to Class A and B scenic features. The effect on visual resources under the Flexible Purchase Alternative is less than significant; the effect is also less than significant for the Fixed Purchase Alternative.

EWA acquisition of water from Western Canal WD, Joint Water Districts, and Garden Highway MWC via crop idling and groundwater substitution would increase the surface water elevation from April to June and decrease the surface water elevation in July and August in Lake Oroville compared to the Baseline Condition. EWA would acquire up to 35,000 acre-feet of water via groundwater substitution or up to 35,000 acre-feet from crop idling. During April through June, Lake Oroville would hold back as much as 17,900 acre-feet of water that would have been released under the Baseline Condition. Surface elevations would increase during the holding time and decrease slower during release in July and August. Surface elevation fluctuations would not change the landscape character and would not detract from the scenic attractiveness of the visual resources around Lake Oroville. There would be less change in surface water elevation under the Fixed Purchase Alternative than under the Flexible Purchase Alternative. Because there were no significant effects under the Flexible Purchase Alternative, there would also be no significant effects under the Fixed Purchase Alternative.

18.2.5.1.3 Yuba River

EWA acquisition of Yuba River Contractor water via groundwater substitution would decrease Yuba River flows from April to June. Yuba River flows would decrease by 195 cfs in late spring as farmers use groundwater for irrigation instead of surface water from New Bullards Bar Reservoir. The decrease in flow would not affect the character of the landscape or overall scenic attractiveness of the land. A decrease in flow would

not affect Class A or B visual resources; therefore, the effect to visual resources would be less than significant. No mitigation is required.

EWA acquisition of Yuba River Contractor water via groundwater substitution would increase Yuba River flows in June through September. In June through September, flows would increase downstream from New Bullards Bar with an additional release of 195 cfs. An increase in flow could contribute to the character of the landscape; therefore, there would be no adverse effect. No mitigation is required.

New Bullards Bar

EWA acquisition of water from Yuba County WA via stored reservoir water and groundwater substitution would alter the surface water elevation from April to refill at New Bullards Bar Reservoir. Groundwater substitution would increase water levels in New Bullards Bar Reservoir while the water is held back until the Delta pumps are available. Beginning in June, New Bullards Bar would release, at a maximum, 35,000 acre-feet of water to be used as an EWA Asset. The release would reduce surface elevations by a maximum of 8 feet compared to the Baseline Condition. The fluctuations in surface water elevation at New Bullards Bar Reservoir would not be substantial enough to change the character of the landscape and would not detract from the scenic attractiveness. Therefore, the effect to the visual resources from EWA acquisition of Yuba County WA stored reservoir water would be less than significant. No mitigation is required.

18.2.5.1.3 American River

EWA acquisition of Placer County WA stored reservoir water would increase Middle Fork of the American River flows downstream from Oxbow Powerhouse to Folsom Lake from June through October. The same amount of water could be transferred under the Fixed Purchase Alternative as described in the Flexible Purchase Alternative. Refer to Section 18.2.4.1.4 for a discussion of potential effects. An increase in flow could contribute to the character of the landscape of the resource; therefore, there would be no adverse effect. No mitigation is required.

EWA acquisition of Placer County WA stored reservoir water would decrease American River flows downstream from French Meadows Reservoir to Folsom Lake during refill of Hell Hole and French Meadows Reservoirs. The same amount of water could be transferred under the Fixed Purchase Alternative as described in the Flexible Purchase Alternative. Refer to Section 18.2.4.1.4 for a discussion of potential effects. The effects of the Flexible Purchase Alternative would be less than significant; the effects of the Fixed Purchase Alternative would also be less than significant.

EWA acquisition of Sacramento Groundwater Authority's water via stored groundwater purchase would increase American River flows downstream from Folsom Lake from June through December. The same amount of water could be transferred under the Fixed Purchase Alternative as described in the Flexible Purchase Alternative. Refer to Section 18.2.4.1.4 for a discussion of potential effects. An increase in flow would contribute to the character of the landscape; therefore, there would be no adverse effect. No mitigation is required.

Hell Hole and French Meadows Reservoirs

EWA acquisition of Placer County WA stored reservoir water would decrease surface water elevations from June to refill at Hell Hole and/or French Meadows Reservoirs. EWA acquisition of up to 20,000 acre-feet of stored reservoir water would decrease surface water elevation by a maximum of approximately 8 feet in French Meadows Reservoir (Figure 14-10) and in Hell Hole Reservoir by a maximum of approximately 14 feet from July until refill (Figure 14-11). The same amount of water could be transferred under the Fixed Purchase Alternative as described in the Flexible Purchase Alternative. Refer to Section 18.2.4.1.4 for a discussion of potential effects. Effects to visual resources would be less than significant. No mitigation is required.

Folsom Lake

EWA acquisition of Sacramento Groundwater Authority's water via stored groundwater purchase and Placer County Water Agency's water via stored reservoir water would change surface water elevations in Folsom Lake. During July and August, the surface water elevation at Folsom Lake would be 0.8 of a foot lower than under the Baseline Condition. The same amount of water could be transferred under the Fixed Purchase Alternative as described in the Flexible Purchase Alternative. Refer to Section 18.2.4.1.4 for a discussion of potential effects. Effects to visual resources would be less than significant. No mitigation is required.

18.2.5.1.5 Merced/San Joaquin Rivers

EWA acquisition of Merced ID water via groundwater substitution would decrease Merced River flows downstream from New Exchequer Dam to the point of diversion from April through June. Merced River flows would decrease by approximately 70 cfs. An equivalent amount of water could be sold to the EWA agencies under the Fixed Purchase Alternative, as is described under the Flexible Purchase Alternative. Refer to Section 18.2.4.1.5, Merced River, for a discussion of potential effects. The effects of the Flexible Purchase Alternative would be less than significant; the effects of the Fixed Purchase Alternative also would be less than significant. No mitigation is required.

EWA acquisition of Merced ID water via groundwater substitution would increase the water surface elevation in Lake McClure compared to the Baseline Condition. EWA agencies could acquire 25,000 acre-feet through groundwater substitution. Lake McClure would hold back water and surface water elevation would increase. An increase would contribute to the character of the lake; therefore, there would be no adverse effect. No mitigation is required.

18.2.5.2 Delta

There would be no decreases in Delta inflows from the Sacramento or San Joaquin rivers under the Fixed Purchase Alternative; however, Delta exports would increase. There would be little effect to Class A or B visual resources of the Delta; therefore, this effect would be considered less than significant. No mitigation is required.

18.2.5.3 Export Service Area

EWA acquisition of water in Fresno, Kern, Kings, and Tulare Counties via crop idling would result in temporary conversion of cotton fields to bare fields. A portion of the cotton acreage is located near Interstate 5, and is visible to large numbers of viewers. Total crop idling would be limited to less than 20 percent of all cotton farmland in each county. The visual change from cotton land (Class C) to idled field (Class C, see Figure 18-2) would result in minor adverse visual changes to a Class C resource (farmland). Since the change in scenic attractiveness would be minimal, this effect would be less than significant. No mitigation is required.

Anderson Reservoir

EWA source shifting of project water from San Luis Reservoir would decrease surface water elevations in Anderson Reservoir whereas EWA pre-delivery of water from San Luis Reservoir would increase surface water elevations. Santa Clara Valley Water District operates Anderson Reservoir for normal water supply, emergency water supply, and for flood control within the Coyote Creek drainage. The District maintains a minimum pool amount of 20,000-acre feet. The District would not be involved in any source shifting action that would decrease amounts to less than the minimum pool. Although source shifting may lower the surface elevation earlier than normal in a season, it would not cause a visual effect greater than that experienced as part of normal operations. Pre-delivery would result in an increased surface water elevation reducing the visual effect of the drawdown zone. In either case, EWA source shifting or pre-delivery would have a less than significant effect on the visual quality of Anderson Reservoir.

San Luis Reservoir

EWA borrowed project water from San Luis Reservoir would decrease surface water elevations. Surface water levels in San Luis Reservoir would decrease earlier in the year. The existing “bathtub ring” would be large enough that an additional decrease would not detract from the overall scenic attractiveness of the reservoir. Furthermore, the reservoir levels typically vary during the summer under the Baseline Condition. Therefore, a decrease in surface water levels earlier in the year would not affect any Class A or B visual resources of San Luis Reservoir, and the effects would be less than significant. No mitigation is required.

Diamond Valley Lake, Lake Perris, Castaic Lake, and Lake Mathews

EWA source shifting would decrease the summer surface water elevation at Diamond Valley Lake, Lake Perris, Castaic Lake, and Lake Mathews. The effects as described for the Flexible Purchase Alternative in Section 18.2.4.3 for source shifting at these reservoirs would be the same as under the Fixed Purchase Alternative. Therefore, the effect on visual resources would be less than significant. No mitigation is required.

18.2.6 Comparative Analysis of Alternatives

This section has thus far analyzed the effects of many potential transfers, looking at the “worst-case scenario” that would occur if all acquisitions happened in the same year. This approach ensures that all effects of transfers are included, and provides the EWA Project Agencies the flexibility to choose transfers that may be preferable in a

given year. The EWA; however, would not actually purchase all of this water in the same year. This section provides information about how EWA would more likely operate in different year types.

In the Upstream from the Delta Region, the Fixed Purchase Alternative would be limited to a maximum acquisition of 35,000 acre-feet from all sources of water. This amount could typically be obtained from stored reservoir water purchases in most year types. In very dry years, stored reservoir water may not be available, and the EWA would need to look to other sources. These sources would probably be groundwater substitution first and crop idling second. Therefore, in most years under the Fixed Purchase Alternative, the primary visual resource effect would be at the reservoirs (Class A and B visual resources). In very few years would there be an agriculture (Class C visual resource) related visual effect.

The Flexible Purchase Alternative could involve the purchase of up to 600,000 acre-feet of water from all sources in the Upstream from the Delta Region. EWA agencies would prefer to purchase water from upstream sources because the water is generally less expensive. The amount that could be purchased would be limited by the capacity of the Delta export pumps to move the water to export areas south of the Delta. During wet years, excess pump capacity may be limited to as little as 60,000 acre-feet of EWA asset water because the pumps primarily would be used to export state and federal project water to export service area users. During dry years, when there would be less Project water available for pumping (and therefore the pumps would have greater available capacity), the EWA Project Agencies could acquire up to 600,000 acre-feet of water from sources in the Upstream from the Delta Region. Therefore, in dry years, EWA acquisitions by all methods would have a potential for affecting visual resources related to reservoirs (Class A and B) and agricultural land (Class C). Table 18-1 compares the Flexible and Fixed Purchase Alternatives to the Baseline Condition.

The EWA Project Agencies usually prefer to purchase stored reservoir water because it is the least expensive option. In dry years for the Fixed Purchase Alternative, EWA Project Agencies would likely purchase all stored reservoir water available, and then look to other options for the remainder of its purchases. The effects on visual resources would be greater during these years. In wet years, a portion of the stored reservoir water available would likely provide the entire amount of water that could be moved through the Delta. During these years the effects on visual resources would be less striking.

The potential for effects on visual resources during wet and dry years for the Flexible Purchase Alternative would be very similar to the Fixed Purchase Alternative because stored reservoir water would be utilized before any other assets.

Table 18-1 Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources							
Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
Sacramento River	Groundwater substitution/ Crop idling Flexible: 166 TAF Fixed: 35 TAF	Water held in Lake Shasta in June.	Slower decrease in water levels in Lake Shasta in June, compared to non-EWA conditions.	Sacramento River decreases 1,160 cfs.	Sacramento River decreases 180 cfs.	LTS	LTS
				Lake Shasta contains as much as 68,900 acre-feet more compared to the Baseline Condition.	Lake Shasta contains as much as 9,000 acre-feet more compared to the Baseline Condition.	LTS	LTS
		Water is released from Lake Shasta in July through September.	Increase in releases from Lake Shasta from July through September.	Sacramento River increases by as much as 1,940 cfs in July.	Sacramento River flows increase.	No effect	No effect
	Crop Idling	Conversion of rice fields to barren land	Reduced rice acreage in Glenn, Colusa and Yolo Counties	Idling a maximum of 47,980 acres	Idling a maximum of 34,770 acres	LTS	LTS

Table 18-1
Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources

Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
Feather River	Stored reservoir water Flexible & Fixed: Sly Creek 5 TAF Little Grass Valley 12 TAF	Water is released from Sly Creek and Little Grass Valley Reservoirs.	Sly Creek and Little Grass Valley reservoir levels decrease from November until refill.	Sly Creek reduced by maximum of 5,000 acre-feet and 17 ft in elevation. Little Grass Valley reduced by maximum of 12,000 acre-feet and 12 ft in elevation.	Sly Creek reduced by maximum of 5,000 acre-feet and 17 ft in elevation. Little Grass Valley reduced by maximum of 12,000 acre-feet and 12 ft in elevation.	LTS	LTS
	Groundwater substitution/ Crop idling Flexible: 230 TAF Fixed: 35 TAF	Water is held in Lake Oroville in April through June	Slower decrease in water levels in Lake Oroville from April – September, compared Baseline Condition.	Lake Oroville contains as much as 120,600 acre-feet more than the Baseline Condition.	Lake Oroville contains as much as 17,900 acre-feet more than the Baseline Condition.	LTS	LTS
	Crop Idling	Conversion of rice fields to barren land	Reduced rice acreage in Butte and Sutter Counties	Idling a maximum of 38,340 acres	Idling a maximum of 21,200 acres	LTS	LTS

Table 18-1
Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources

Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
Yuba River	Stored Reservoir Water/Ground-water substitution Flexible: 100 TAF Fixed: 35 TAF	Water is released from New Bullards Bar Reservoir.	Yuba River flows increase June through September.	Yuba River flows increase by 1,005 cfs;	Yuba River flows increase by 195 cfs	No effect	No effect
			New Bullards Bar water levels decrease April to refill	New Bullards Bar reduced by 100,000 acre-feet and 24 ft in elevation.	New Bullards Bar reduced by 35,000 acre-feet and 8 ft in elevation.	LTS	LTS
	Groundwater Substitution Flexible: 85 TAF Fixed: 35 TAF	Water is held in New Bullards Bar Reservoir.	Yuba River flows decrease April through June	Yuba River flow decreases by 239 cfs	Yuba River flow decreases by 100 cfs	LTS	LTS
American River	Stored Reservoir Water Flexible & Fixed: 20 TAF	Water is released from French Meadows and Hell Hole Reservoirs	French Meadows and Hell Hole Reservoir water levels decrease June to refill	FM decreases by 7,800 acre-feet and 8ft in elevation. HH decreases by 12,200 acre-feet and 14ft in elevation.	FM decreases by 7,800 acre-feet and 8ft in elevation. HH decreases by 12,200 acre-feet and 14ft in elevation.	LTS	LTS

Table 18-1
Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources

Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
American River	Stored Reservoir Water Flexible & Fixed: 20 TAF	Water is released from French Meadows and Hell Hole Reservoirs	Flows in the American River between French Meadows/Hell Hole Reservoirs and Folsom Lake are increased July – September	American River flow increases.	American River flow increases.	No effect	No effect
		Water is held in French Meadows and Hell Hole Reservoirs	Flows in the American River would decrease downstream from French Meadows to Folsom Lake during refill	American River flows decrease.	American River flows decrease.	LTS	LTS
	Stored Reservoir Water and Groundwater Purchase	Water is released from Folsom Lake.	Surface water elevation in Folsom Lake is lower than the Baseline Condition in July and August.	Surface water elevation in Folsom Lake is 0.8 foot lower than the Baseline Condition.	Surface water elevation in Folsom Lake is 0.8 foot lower than the Baseline Condition.	LTS	LTS

Table 18-1
Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources

Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
American River	Stored Reservoir Water and Groundwater Purchase	Water is released from Folsom Lake.	American River flows downstream of Folsom Lake increase June – December	American River flow increases.	American River flow increases.	No effect	No effect
	Crop Idling	Conversion of rice fields to barren land	Reduced rice acreage in Placer County	Idling a maximum of 3,280 acres	Idling a maximum of 3,280 acres	LTS	LTS
Merced/San Joaquin River	Stored groundwater Purchase Flexible & Fixed: 25 TAF	Water is held in Lake McClure	Slower decrease in water levels in Lake McClure in April through October, compared to non-EWA conditions.	Lake McClure increases by a maximum of 25,000 acre-feet	Lake McClure increases by a maximum of 25,000 acre-feet	LTS	LTS
			Merced River flows decrease April – October.	Merced River flow decreases by 70 cfs	Merced River flow decreases by 70 cfs	LTS	LTS
Delta Region	Crop idling, Groundwater substitution, Stored groundwater purchase, Stored reservoir water	Water is released from reservoirs	Increased Delta exports July – September	Delta exports increase by a maximum of 2,118 cfs.	Delta exports increase by a maximum of 245 cfs.	LTS	LTS

**Table 18-1
Comparison of the Effects of the Flexible and Fixed Purchase Alternatives on Visual Resources**

Region	Asset Acquisition or Management	Result	Effects	Flexible Alternative Change from the Baseline Condition	Fixed Alternative Change from the Baseline Condition	Significance of Flexible Alternative	Significance of Fixed Alternative
Export Service Area	Source Shifting	Water is drawn from SWP, SCVWD, and MWD reservoirs	Decreased water levels in Anderson, Castaic, Perris, Mathews and Diamond Valley	Water levels decreased by 200,000 acre-feet total for all reservoirs.	Water levels decreased by 200,000 acre-feet total for all reservoirs.	LTS	LTS
	Borrowed Project Water	Water is released from San Luis Reservoir	Decreased water levels in San Luis Reservoir	San Luis Reservoir water levels would reach the low point at the same time as under the Baseline Condition.	San Luis Reservoir water levels would reach the low point at the same time as under the Baseline Condition.	LTS	LTS
	Crop Idling	Conversion of cotton lands to barren fields	Reduced cotton acreage in the Export Service Area	Idling a maximum of 182,800 cotton acres	Idling a maximum of 177,300 cotton acres	LTS	LTS

18.2.7 Mitigation Measures

Under each of the acquisition types and alternatives no adverse effects would occur from the Fixed and Flexible Purchase Alternatives to the visual resources found within the area of analysis. Therefore, no mitigation measures would be required.

18.2.8 Potentially Significant Unavoidable Impacts

There would be no potentially significant unavoidable impacts associated with the Fixed Purchase Alternative and Flexible Purchase Alternative.

18.2.9 Cumulative Effects

18.2.9.1 Upstream from the Delta Region

The Sacramento Valley Water Management Agreement, Dry Year Purchase Program, Drought Risk Reduction Investment Program, CVP Improvement Act Water Acquisition Program, and Environmental Water Program include water acquisitions upstream from the Delta. These programs all include stored reservoir water, and many include other acquisition types such as groundwater substitution, groundwater purchase, and crop idling. These programs, in addition to the EWA, could magnify the effects described under the Flexible Purchase Alternative.

The Environmental Water Program would purchase water from different facilities than the EWA; therefore, there would be no potential for a cumulative decrease in surface water elevation in reservoirs resulting in adverse visual effects. The Sacramento Valley Water Management Agreement, Dry Year Purchase Program, and Drought Risk Reduction Investment Program, as well as other potential water transfers, could purchase water from the same reservoirs as the EWA. Other programs in combination with the EWA that purchase water from the same selling agency could draw down reservoirs further than analyzed in this chapter. The additional water sold for other programs would reduce the Baseline Condition as described and could cause significant effects. A cumulative effect would only be considered significant if the combined program acquisitions surpassed the significance criteria. If all water acquisition programs purchased water from the same source, a cumulative visual effect could occur. Because the Project Agencies would have some involvement in non-EWA water acquisition programs due to the need to use SCP and/or SWP facilities to export the water, EWA agencies would have the opportunity to assess cumulative effects and not purchase water from a water agency if a cumulative effect would occur. Therefore, EWA would not have an incremental effect to the cumulative condition.

Actions such as groundwater substitution and crop idling in the Upstream from the Delta Region would potentially occur in four out of the five cumulative programs. These actions, in addition to the EWA, would create changes in the timing and quantity of water released from reservoirs, altering river flows. Water transfers from other agencies along the same rivers as in the EWA program area could also contribute to a cumulative effect on the change in river flow. EWA agencies would

not purchase water from a water agency if a cumulative effect would occur. Therefore, EWA would not have an incremental effect to the cumulative condition.

18.2.9.2 Export Service Area

Only the Drought Risk Reduction Investment Program and the CVPIA Water Acquisition Program operate in the Export Service Area. Any water acquired through crop idling would not be a permanent action and would involve a Class C visual resource. Therefore, increased crop idling from various programs would not produce a cumulatively significant effect to visual resources.

18.3 References

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